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In the Armenian version of the Eusebio-Manetho Table, the earlier date has not been found ; but the lower date is regularly given in the Regnal numbers, for, counting downwards,

$$\begin{aligned} \text{B. C. 1413} - 11 - "8 - 15 - 5 - 68 - 40 - 194" \\ = \text{B. C. 1072.} \end{aligned}$$

This lower date is confirmed by Ctesias, in his statement that the Assyrian Empire commenced 1000 years before the Fall of Troy, and lasted 1360 years: the dissolution of the Assyrian Empire being regarded by chronologists as fixed to the year B. C. 711, we have for Ctesias's date of the Fall of Troy,

$$\text{B. C. 711} + "1360 - 1000" = \text{B. C. 1071.}$$

Further, the Greek discrepancy of Fourteen Olympiads, or fifty-six years, occurring equally in Manetho's Tables, may be fairly applied to his Greek date of B. C. 1127: when,

$$\text{B. C. 1127} - 56 = \text{B. C. 1071,}$$

Manetho's reckoning proves to be the same with that of Ctesias, and perhaps of the Greeks generally. Dr. Pickering thinks, therefore, that *B. C. 1071 is within a year of the Fall of Troy* ; but has not ascertained whether the separate years will now close the chronological gap mentioned by Clinton. If so, and the date proves correct, it will carry the invasion of Greece by the Heraclidæ to the reign of Solomon.

Four hundred and thirty-eighth meeting.

April 14th, 1857. — ADJOURNED STATED MEETING.

The Academy met at the house of Dr. Hayward. The President in the chair.

The Corresponding Secretary read a letter from the Secretary of the Academy of Science of St. Louis, dated April 4th, requesting an exchange of publications on the part of the Academy.

Professor Lovering read the following report on the Hedgcock Quadrant, which was accepted and ordered to be placed on file.

“The committee appointed at the last meeting of the American Academy of Arts and Sciences to examine Hedgcock’s Patent Quadrant, which was submitted to the Academy, have attended to the duty assigned to them and ask leave to report as follows.

“A full meeting of the committee was held on the 14th of March, at which Mr. Ayling was present. He then exhibited the new instrument, and attempted to explain the peculiarities and pretensions of it. The committee have handled the instrument, and have made themselves familiar with its construction; which, as compared with that of the ordinary quadrant, is defective in some points, and in others boasts a superfluous complexity which is the only thing original in the invention, or entitled to a patent.

“The claim made for the instrument, namely, that by it differences of latitude and longitude can be ascertained, rests upon no specified discovery of a new law in nature, and can be shown, when analyzed, to contradict the best determined laws. The reflecting quadrant is essentially an optical instrument. In optics there are only two ways known by which the *direction* of a ray of light can be altered, viz. *reflection* and *refraction*; and these changes of direction are the same for polarized as for unpolarized light. To maintain, therefore, that, when the images of an object have been brought into juxtaposition with the object itself, and the glasses clamped, this juxtaposition will not continue if the instrument is transferred to another place, and that the motion which must be given to the glasses to restore the juxtaposition will give the change of latitude and longitude, is to maintain neither more nor less than this, — that the laws of the reflection and refraction of light, which have been verified wherever there has been an observer for the last two hundred years, are not constant any longer, but have recently changed with the geographical position, and in such a marvellous way as exactly to suit the special claim of this Patent Quadrant.

“In opposition to any testimony that may be adduced to prove that this instrument has ever done what your committee say that it is incapable of doing, the committee would simply urge the unanimous and overwhelming testimony of mankind, not only of scientific men, but also of all engineers, surveyors, travellers, and sailors who have successfully determined their position by means of any quadrant or sextant, not one of whom has ever discovered that every observation he took with a reflecting glass was erroneous to the full extent of the dif-

ference between his latitude and longitude and some one standard place ; as it must have been if the laws of light then changed with a change of parallels and meridians, and this Patent Quadrant is not a patent absurdity. Lastly, any change of latitude and longitude which could be detected with the new instrument by means of the assumed discovery in the laws of light, might also be found, and with equal facility, by means of any other reflecting quadrant or sextant ; and certainly with greater accuracy, unless the construction of the Patent Quadrant is much improved. Hence Mr. Hedgcock's modification is, on his own principles, quite unnecessary.

“ One absurdity naturally leads to other absurdities : the boldest of which here is another claim for the new instrument ; viz. that by it the navigator can obtain his geographical position, whether he observes the sun in the heavens or a lamp in his cabin. This is a necessary consequence of any admission made in favor of the new instrument. For the laws of reflection, as far as *direction* is concerned, are the same for all light, artificial or natural.

“ The committee would say, in conclusion, that they feel justified in rejecting the pretensions of this Patent Quadrant, as contrary not only to the universal teachings of science, but also to the constant experience of practical navigators ; and that they regard the whole claim as simply ridiculous, and the language, printed and spoken, in which the claim has been asserted, as unintelligible nonsense ; and the whole subject, therefore, as unworthy of the further attention of the Academy.

(Signed,)

JOSEPH LOVERING,
B. A. GOULD, JR.,
G. P. BOND,
J. INGERSOLL BOWDITCH.”

Dr. A. A. Gould presented, in the name of the family of the late Dr. Amos Binney, a former Fellow of the Academy, the third volume of his work on American Helices, containing the plates, now just completed.

Dr. H. I. Bowditch presented, in the name of Major Alvord of the United States Army, a copy of his paper on the “ Tangents of Circles and Spheres.”

Dr. Holmes exhibited and explained a new model of a stand for a microscope, contrived by himself, in which the various

qualities of cheapness, portability, great stability, and most accurate and delicate adjustment were combined.

Four hundred and thirty-ninth meeting.

May 12th, 1857. — MONTHLY MEETING.

The Academy met at their rooms. Professor Treadwell, Vice-President, in the chair.

The Corresponding Secretary read letters from the Ethnological Society, London; the Royal Saxon Society of Sciences, Leipsic; the Royal Bavarian Academy of Sciences, Munich; and the Boston Society of Natural History, acknowledging the receipt of the Academy's publications; and from the Royal Bohemian Society of Science, Prague, presenting its Transactions.

Mr. G. P. Bond communicated the results of an examination of the photographs of the star Mizar (ζ Ursa Majoris), with its companion, and the neighboring star Alcor; specimens of which were exhibited.

"Daguerreotype images of the star Vega (α Lyræ) were obtained at the Observatory of Harvard College by the well-known artist, Mr. J. A. Whipple of Boston, on the 17th of July, 1850, and subsequently impressions were taken from the double star, Castor, exhibiting an elongated disc, but no distinct separation of its two components. These were the first, and, till very recently, the only known instances, of the application of photography to the delineation of the fixed stars.

"A serious difficulty was interposed to further progress by the want of suitable apparatus for communicating uniform sidereal motion to the telescope. This has now been supplied by replacing the original Munich clock of the great equatorial of the Observatory by a new one, on the principle of the spring governor, invented by the Messrs. Bond. This clock, which was made by Messrs. George and Alvan Clark of East Cambridge, carries the telescope with admirable evenness and regularity of motion.

"Immediately upon its completion, at the invitation of the Director of the Observatory, Messrs. Whipple and Black commenced a new series of experiments, and have succeeded in transferring to the plate,